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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,642	05/22/2001	John Andrew Aiken JR.	5577-234	8726

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EXAMINER

PEREZ DAPLE, AARON C

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 09/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/862,642

Applicant(s)

AIKEN ET AL.

Examiner

Aaron C Perez-Daple

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date see continuation.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continuation of Attachment(s): IDS Mail Dates: 4/02/04, 3/19/04, 12/15/03, 8/01/02, 5/22/01.

DETAILED ACTION

1. This Action is in response to Application filed 5/22/01, which has been fully considered.
2. Claims 1-27 are presented for examination.
3. This Action is non-Final.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-4, 24 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Locklear, Jr. et al. (US 6,252,878 B1) (hereinafter Locklear) in view of Alteon (Alteon Web Systems, "The Next Step in Server Load Balancing," November, 1999.) (hereinafter Alteon). Alteon is cited by the Applicant in IDS paper filed on 8/1/02.
6. As for claims 1, 24 and 26, Locklear teaches a method of establishing a connection originated by an application executing on a data processing system in a cluster of data processing systems, the method comprising:
 - associating a dynamic network address with the application at the data processing system on which the application is executing (col. 5, lines 1-23);
 - determining if a received request for the data processing system to originate a connection is associated with the application (col. 5, lines 37-58; col. 6, lines 50-67); and

establishing the connection utilizing the associated dynamic network address as a source address for the connection if the request is associated with the application (col. 5, lines 1-23).

Although the Examiner considers that Locklear teaches all the limitations of claim 1, Applicant may argue that Locklear does not explicitly teach using the associated dynamic network address as a source address for the connection. Alton is cited as evidence that it is well-known to those of ordinary skill in the art to use the associated dynamic network address as a source address for the connection in order to properly route communications associated with a given connection or session (pg. 5, TCP/IP Server Load-Balancing Operation, especially paragraphs 1-4). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Locklear by using the associated dynamic network address as a source address for the connection in order to properly route communications associated with a given connection or session, as taught by Alton above.

7. As for claim 2, Locklear teaches the method of claim 1, further comprising: determining if the application has specified a network address for the requested connection; and

utilizing the specified network address to establish the connection if the application has specified a network address (Note, for existing sessions, the network address is already specified by the application and stored in the mapping table of Fig. 3C.; col. 5, lines 37-58; col. 6, lines 50-67); and

wherein the step of establishing the connection further comprises selectively utilizing the associated dynamic network address as the source address for the connection if the application has not specified a network address for the requested connection (col. 5, lines 1-23).

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8. As for claim 3, Locklear teaches the method of claim 2, wherein the step of determining if the application has specified a network address for the requested connection comprises determining if a socket for the connection has been bound to a network address (Note, a socket is merely an endpoint of a connection, typically identified by the address and/or port number. Therefore, binding an address and/or port number is equivalent to binding a socket. See cited definition from techdictionary.com.; col. 6, lines 50-67).
9. As for claim 4, Locklear discloses the method of claim 1, wherein the application comprises one of a plurality of instances of an application executing on the data processing system in the cluster of data processing systems;

wherein the step of associating a dynamic network address with the application at the data processing system on which the application is executing comprises associating a dynamic network address with the one of the plurality of instances of the application at the data processing system on which the one of the plurality of instances of the application is executing (col. 5, lines 1-23); and

wherein the step of determining if a request for the data processing system to originate a connection is associated with the application comprises determining if a request for the data processing system to originate a connection is associated with the one of the plurality of instances of the application (col. 5, lines 1-23; col. 5, lines 37-58; col. 6, lines 50-67).
10. **Claims 5-13, 15-22, 25 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Alteon in view of Locklear.

11. As for claim 5, 25 and 27, Alteon discloses a method of selecting a source address for a connection originated by an application executing on a data processing system in a cluster of data processing systems, comprising:

associating a dynamic virtual IP address (DVIPA) with the application at a communication protocol stack of the data processing system in the cluster of data processing systems so as to utilize the DVIPA as the source address for the connection originated by the application (pgs. 1-2, Overview; pg. 5, TCP/IP Server Load Balancing Operation, especially paragraphs 1-4; The Examiner notes that a communication protocol stack is inherent for processing TCP/IP communications. See cited definition from techdictionary.com.).

The Examiner interprets that Alteon teaches originating the connection at the application executing on the data processing system, because originating *the connection* does not necessarily require originating *the connection request*. In other words, Alteon teaches that the client originates the connection request (see pg. 1, Overview and pg.5, TCP/IP Server Load-Balancing Operation). However, the connection itself is not established until the application sends a response to the client, which response includes the binding VIP address. Therefore, it is reasonable to interpret that the connection itself originates at the application.

Under a second interpretation, the connection may be considered to be the connection established between the server switch and the back-end server. The application can be interpreted as the session running on the server switch.

Both interpretations meet all the limitations of the claims.

Under a third interpretation, the connection request originates at the application server. It can be argued that Alteon does not explicitly disclose originating a connection request at the

application server. Nonetheless, it is well-known to those of ordinary skill in the art that connection requests may also be initiated by the application servers. Locklear is cited as evidence of this fact, since Locklear teaches establishing sessions in both directions between devices on a network, where it is clear that the devices may represent clients (devices 12, Fig. 1) and servers (devices 14, Fig. 1). Applicant further admits that this is well-known on pg. 3, lines 32-35 of the specification. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Alteon by originating the client request at the application executing on the data processing system in order to facilitate sending data from the application to the client, as taught by Locklear above.

12. As for claim 6, Alteon discloses a method of claim 5, wherein the step of associating a DVIPA with the application comprises:

receiving a connection request for a connection at the communication protocol stack (pg. 1, Overview, second paragraph);

determining if the connection request received at the communication protocol stack is associated with the application (pg. 1, Overview, fourth paragraph; pgs. 9-11, especially Persistence Policies, Hash and SSL Session Tracking); and

selecting the DVIPA as the source address for the connection if the connection request is associated with the application (pg. 5, TCP/IP Server Load-Balancing Operation, especially paragraphs 1-4).

13. As for claim 7, Alteon discloses the method of claim 6, further comprising:

determining if the application is bound to an IP address (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation); and

selecting the IP address to which the application is bound as the source address if the application is bound to an IP address (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation; see also pgs. 9-11, especially Persistence Policies and Hash); and

wherein the step of selecting the DVIPA comprises selecting the DVIPA as the source address for the connection if the connection request is associated with the application and the application is not bound to an IP address (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation).

14. As for claim 8, Alteon discloses the method of claim 7, further comprising:

establishing at the communication protocol stack a predefined association of the DVIPA and the application;

wherein the step of determining if the connection request received at the communication protocol stack is associated with the application comprises determining if the connection request is from the application (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation); and

wherein the step of selecting the DVIPA as the source address for the connection if the connection request is associated with the application comprises selecting the DVIPA as the source address for the connection if the connection request is from the application and a predefined association of the DVIPA and the application has been established (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation).

15. As for claim 9, Alteon discloses the method of claim 8, wherein the step of establishing at the communication protocol stack a predefined association of the DVIPA and the application

comprises processing at the communication protocol stack a configuration statement which specifies the DVIPA and an application with which the DVIPA is associated (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation).

16. As for claim 10, Alteon discloses the method of claim 8, further comprising:
 - determining if the DVIPA is configured for the communication protocol stack (pg. 7, TCP Connection Monitoring); and
 - generating an error message if the DVIPA is not configured for the communication protocol stack (pg. 7, TCP Connection Monitoring).
17. As for claim 11, Alteon discloses the method of claim 8, further comprising:
 - determining if the DVIPA is active on the communication protocol stack (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation);
 - activating the DVIPA if the DVIPA is not active and if the DVIPA is in a range of DVIPAs specified for the communication protocol stack (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation).
18. As for claim 12, Alteon discloses the method of claim 11, further comprising generating an error message if the DVIPA is not active and is not in a range of DVIPAs specified for the communication protocol stack (pg. 7, TCP Connection Monitoring).
19. As for claim 13, Alteon discloses the method of claim 6, wherein the application comprises an instance of a plurality of instances of an application executing on the data processing system (pg. 7, TCP Connection Monitoring).
20. As for claim 15, Alteon discloses a system for establishing a connection between an application and a client, the system comprising:

a cluster of data processing systems (Fig. 2);

the application executing on a data processing system in the cluster of data processing systems (pg. 3, Applications); and

a communication protocol stack on the data processing system in the cluster of data processing systems, the communication protocol stack being configured to associate a dynamic virtual Internet protocol address (DVIPA) with the application so that the DVIPA is utilized as a source address for a connection request from the application (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation).

Under one interpretation, the connection may be considered to be the connection established between the server switch and the back-end server. The application can be interpreted as a session running on the server switch. In this case, the connection request would originate at the application. Therefore, the Examiner interprets that Alteon meets all the limitations of claim 1.

Under a second interpretation, the connection request originates at the application server. It can be argued that Alteon does not explicitly disclose originating a connection request at the application server. Nonetheless, it is well-known to those of ordinary skill in the art that connection requests may be initiated by application servers. Locklear is cited as evidence of this fact, since Locklear teaches establishing sessions in both directions between devices on a network, where it is clear that the devices may represent clients (devices 12, Fig. 1) and servers (devices 14, Fig. 1). Applicant further admits that this is well-known on pg. 3, lines 32-35 of the specification. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Alteon by originating the client request at the application

executing on the data processing system in order to facilitate sending data from the application to the client, as taught by Locklear above.

21. As for claim 16, Alton discloses the system of claim 15, wherein the communication protocol stack is further configured determine if the application is bound to an IP address, select the IP address to which the application is bound as the source address if the application is bound to an IP address and select the DVIPA as the source address for the connection if the connection request is from the application and the application is not bound to an IP address (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation).
22. As for claim 17, Alton teaches the system of claim 15, wherein the communication protocol stack is further configured to establish a predefined association of the DVIPA and the application and select the DVIPA as the source address for the connection if the connection request is from the application and a predefined association of the DVIPA and the application has been established (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation).
23. As for claim 18, Alton teaches the system of claim 17, wherein the communication protocol stack is further configured to establish the predefined association of the DVIPA and the application by processing a configuration statement which specifies the DVIPA and an application with which the DVIPA is associated (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation).
24. As for claim 19, Alton teaches the system of claim 17, wherein the communication protocol stack is further configured to determine if the DVIPA is configured for the

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communication protocol stack and generate an error message if the DVIPA is not configured for the communication protocol stack (pg. 7, TCP Connection Monitoring).

25. As for claim 20, Alteon teaches the system of claim 17, wherein the communication protocol stack is further configured to determine if the DVIPA is active on the communication protocol stack and activate the DVIPA if the DVIPA is not active and if the DVIPA is in a range of DVIPAs specified for the communication protocol stack (pg. 5, TCP/IP Server Load-Balancing Operation; pgs. 5-6, UDP/IP Server Load-Balancing Operation).
26. As for claim 21, Alteon teaches the system of claim 20, wherein the communication protocol stack is further configured to generate an error message if the DVIPA is not active and is not in a range of DVIPAs specified for the communication protocol stack (pg. 7, TCP Connection Monitoring).
27. As for claim 22, Alteon teaches the system of claim 15, wherein the application comprises an instance of a plurality of instances of an application executing on the data processing system (pg. 7, TCP Connection Monitoring).
28. **Claims 14 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Alteon in view of Locklear and in further view of Applicant's admitted prior art (pgs. 2-3 of the specification) (hereinafter AAPA).
29. As for claims 14 and 23, Alteon and Locklear do not specifically teach using an OS/390 Sysplex system. Applicant admits that it is well-known in the art to use an OS/390 Sysplex system for managing the assignment of virtual addresses. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Alteon and Locklear by

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using an OS/390 Sysplex system in order to manage the assignment of virtual addresses, as taught by AAPA above.

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

EP 0648038 A2, note Fig. 1;

US 2002/0091831 A1, note TCP sockets method;

US 6330,560 B1, note TCP/IP connection management system;

US 6,252,878 B1, note Fig. 1; US 6,247,057 B1, note virtual addressing method;

US 5,740,371, note abstract;

US 6,587,866 B1, note Fig. 1;

US 6,446,225 B1, note session management system;

EP 0648038 A2, note Fig. 1;

US 5,941,988, note TCP gluing;

Search results for protocol stack, www.techdictionary.com, visited 7/29/04;

Search results for socket, www.techdictionary.com, visited 8/16/04;

US 2002/001783 A1, note dynamic virtual addressing for server cluster;

US 6,286,039 B1, note dynamic IP addressing;

US 5,835,723, note dynamic addressing;

US 6,578,066 B1, note Fig. 1;

US 6,031,978, note Fig. 1;


US 5,754,752, note Fig. 1;

US 5,867,636 A, note abstract.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron C Perez-Daple whose telephone number is (703) 305-4897. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (703) 305-8498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 8/19/04

Aaron Perez-Daple

